LEVEL

CLOUD COVER
AND
VISIBILITY CLIMATOLOGY
FOR THE PHILIPPINES

Daniel E. Mitchell, SSgt, USAF

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides cloud cover and visibility climatology for 19 locations in the Philippines. The mean number of days with total cloud amount less than or equal to one-tenth and visibility greater than or equal to 6 miles for each month and by hours of the day are provided for each location.

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PREFACE

The US Air Force Environmental Technical Applications Center (USAFETAC) prepared this report for the Defense Mapping Agency (DMA) Hydrographic/Topographic Center, Washington, DC. The report is intended to help DMA appraise weather factors in the Philippine Islands that could affect aerial photoggraphy. It does not provide a comprehensive climatology of the Philippines, but answers a specific question.

General

Spring is the best season for aerial photography in the Philippines because of the greater number of clear days, fewer storms, good visibility, and slightly less crab angle (crosswind effect). We recommend early spring for the southern and western portions, and late spring or early summer for the northern and eastern portions of the Philippines. Table 1 and Figure 1 list the stations used for this study and show their location. Table 2 provides cloud cover and visibility statistics for each location.

Cloudiness

Cloud cover is the greatest restriction to aerial photographic operations in the Philippines. Mean cloudiness averages 60 percent to 70 percent the year round, with a maximum in the daytime. Cloudiness tends to decrease at night over land and increase over the water. Inland stations have maximum cloud cover during daylight hours, with a minimum of low clouds in the early morning hours. Coastal stations have cloud cover drifting in from the sea in the early morning with a decrease in cloud cover 3 hours after sunrise, then increasing again during the afternoon. This is especially true of the northern and eastern coasts in winter, and the southern and western coasts in summer.

Visibility

Surface visibility below 6 miles is uncommon in this area. Morning ground fog is occasionally present both along the coasts and in the interior valleys, but it usually clears shortly after sunrise. Heavy showers restrict visibilities below 1 mile for short periods. Volcano or higher mountain peaks are covered with clouds at frequent intervals during the winter, limiting the ability to photograph the windward sides and peaks during this period.

Table 1. Stations Used in Study.

STATION NAME	NORTH LATITUDE (deg min)		EAST LONGITUDE (deg min)		WMO* NUMBER	STATION ELEVATION (feet)	PERIOD OF RECORD (yr/mo-yr/mo)
Aparri	18	22	121	38	982320	13	6601-7712
Baguio	15	29	120	58	983280	105	6601-7912
Borangan	11	37	125	26	985530	23	6601-7512
Cagayan de Oro	08	29	124	38	987480	20	6601-7812
Clark AB	15	11	120	33	983270	485	6601-7612
Cebu	10	20	123	54	986450	138	6601-7212
Daet	14	07	122	57	984400	36	7401-7812
Davao	07	04	125	36	987530	66	7401-7812
Dipolog	08	36	123	21	987410	16	6901-7812
Dumaguete	09	18	123	18	986420	20	6601-7812
Hinatuan	08	22	126	20	987550	20	6901-7812
Iloilo	10	42	122	34	986370	46	7201-7812
Malaybalay	08	09	125	05	987510	2106	7201-7812
Manila	14	31	121	01	984290	74	6601-7812
Masbate	12	22	123	37	985430	36	6601-7512
Surigao	09	48	125	30	986530	72	6901-7812
Vigan	17	34	120	23	982220	102	6601-7912
Zamboanga	06	54	122	04	988360	20	6901-7812

* WMO - World Meteorological Organization

Table 2

Mean Number Days With Total Cloud Amount
≤ 1/10 And Visibility ≥ 6 Miles

PHILIPPINES

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Clark AB												
00-02	7	9	11	9	4	2	1	*	*	2	5	6
03-05	8	11	11	10	5	2	2	1	1	3	5	7
06-08	4	5	6	4	2	*	*	*	*	1	2	2
09-11	3	3	3	3	1	*	*	*	*	1	2	2
12-14	1	1	1	1	*	*	*	*	*	*	*	*
15-17	1	1	2	2	*	*	*	*	*	*	*	*
18-20	3	3	6	4	2	*	*	*	*	*	2	2
21-23	5	6	9	6	2	1	*	*	*	1	3	4
Cebu												
00-02	1	*	*	*	1	0	0	*	0	0	*	*
03-05	1	*	*	*	*	0	0	*	*	0	*	0
06-08	*	*	1	*	*	*	0	*	*	*	*	*
09-11	*	*	*	*	*	*	0	0	*	0	*	*
12-14	*	*	1	*	1	*	*	0	*	*	*	*
15-17	*	1	1	1	1	*	0	0	*	*	*	*
18-20	1	*	2	1	1	*	0	0	*	*	*	*
21-23	*	*	1	1	1	*	0	0	0	*	1	0
Cubi Point												
00-02	7	9	7	10	3	1	*	*	*	2	6	6
03-05	8	9	8	10	3	1	1	*	*	3	7	6
06-08	4	5	6	5	3	*	*	*	*	2	2	2
09-11	4	4	4	4	1	*	*	*	*	2	2	2
12-14	2	2	3	2	1	*	*	0	*	1	1	1
15-17	2	2	3	2	1	*	0	0	*	*	1	1
18-20	2	3	4	4	2	*	0	0	*	1	2	2
21-23	5	6	7	8	3	*	0	0	*	2	4	4

Note: * equals less than 0.5 day

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Table 2

PHILIPPINES (cont)

LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Cuyo Is.												
0200	0	*	*	1	*	0	*	0	0	*	*	*
0500	0	0	*	0	0	0	0	0	0	0	0	0
0800	*	1	1	1	0	*	0	*	0	0	*	*
1100	*	1	2	*	*	0	*	0	0	0	*	*
1400	*	*	1	*	0	0	0	0	0	*	*	1
1700	1	1	2	1	0	0	0	0	0	0	1	2
2000	1	0	2	*	*	0	0	0	0	0	0	*
2300	0	0	*	1	1	0	0	0	0	0	0	0
Casiguran												
0200	6	7	12	12	12	10	10	8	9	12	10	7
0500	3	5	10	8	13	6	4	4	6	10	8	6
0800	4	4	7	7	6	3	3	3	2	5	4	4
1100	1	1	2	2	1	1	0	1	1	3	2	1
1400	1	1	2	2	2	1	*	1	*	1	1	1
1700	2	3	3	3	4	3	1	5	0	2	2	2
2000	6	6	9	9	9	8	5	6	5	7	8	6
2300	6	6	8	9	8	10	6	6	6	9	9	6
Baguio												
0200	7	6	6	5	3	1	*	*	*	2	6	6
0500	6	7	6	4	2	1	*	*	*	2	4	5
0800	8	6	8	3	3	1	1	*	1	2	3	3
1100	5	3	2	1	1	*	0	0	0	*	1	2
1400	*	*	*	0	0	0	0	0	0	0	*	0
1700	*	1	*	*	0	0	0	0	0	0	1	*
2000	4	4	3	2	1	*	0	*	*	*	3	4
2300	5	5	5	4	2	1	*	*	1	2	5	5
Aparri												
0200	5	8	12	13	16	9	8	4	6	5	5	5
0500	4	7	11	14	16	6	7	5	4	4	6	6
0800	3	5	10	12	12	4	5	3	3	3	3	3
1100	3	4	7	10	9	2	2	1	2	2	3	2
1400	3	5	10	10	7	2	2	1	2	3	3	2
1700	3	5	11	8	5	2	2	1	2	3	4	3
2000	5	8	13	12	11	5	4	2	5	5	5	5
2300	4	9	12	15	15	8	7	4	6	5	6	5

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Table 2

PHILIPPINES (cont)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Dumaguete	0200	*	*	*	1	0	*	0	0	*	*	*	*
	0500	0	0	0	0	0	0	0	0	0	0	0	0
	0800	0	*	*	*	0	*	0	0	0	*	*	*
	1100	0	0	0	0	0	1	0	0	0	0	0	0
	1400	0	*	*	*	*	*	0	0	0	*	0	*
	1700	0	0	0	0	*	0	0	0	0	0	0	0
	2000	1	1	2	2	1	0	*	*	*	*	*	1
	2300	0	0	0	0	0	0	0	0	0	0	0	0
Dipolog	0200	2	2	3	2	2	1	1	2	1	2	3	1
	0800	1	1	2	1	1	2	2	2	2	2	2	1
	1400	1	2	4	4	1	1	1	1	*	1	2	1
	2000	4	4	8	8	3	1	2	2	1	2	3	3
Davao	0200	1	1	3	2	*	*	*	*	*	1	2	2
	0500	1	0	1	1	1	0	*	*	0	*	1	3
	0800	1	2	3	2	2	1	1	1	1	2	2	2
	1100	1	*	*	1	*	*	*	*	1	*	*	*
	1400	*	0	*	1	*	*	*	*	0	*	*	*
	1700	1	*	*	1	*	0	*	*	0	*	*	*
	2000	1	1	1	1	*	*	0	*	0	*	1	*
	2300	1	1	2	1	*	*	0	1	*	0	1	1
Daet	0200	1	2	2	3	3	1	1	1	1	1	*	*
	0500	1	1	2	3	3	1	*	1	*	1	0	*
	0800	1	*	1	1	1	1	1	*	*	*	*	*
	1100	0	*	*	*	1	*	*	*	0	*	*	0
	1400	*	*	2	1	1	0	0	0	0	*	*	0
	1700	0	1	1	*	1	0	*	*	*	*	*	0
	2000	*	1	2	2	1	*	*	*	*	*	*	*
	2300	1	1	3	2	3	1	1	*	1	1	1	0

Note: * equals less than 0.5 day

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Table 2

PHILIPPINES (cont.)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Laog	00-02	11	16	18	18	14	4	2	2	2	9	14	15
	03-05	15	16	14	16	14	4	3	1	3	9	15	15
	06-08	13	13	16	15	13	3	3	1	2	7	12	12
	09-11	13	13	16	16	11	2	2	1	2	8	12	12
	12-14	12	13	16	13	6	1	1	1	1	6	10	11
	15-17	12	12	12	9	2	*	*	*	1	6	11	11
	18-20	12	13	13	11	4	*	*	*	*	7	12	11
	21-23	14	16	18	17	10	2	1	1	1	10	14	15
Legaspi	00-02	0	*	1	*	*	*	*	0	0	*	*	*
	03-05	*	*	1	*	0	*	0	0	0	*	0	*
	06-08	*	*	1	1	*	1	*	*	*	1	*	*
	09-11	*	*	*	*	*	*	0	*	0	*	*	*
	12-14	*	*	*	*	*	0	*	0	0	0	*	*
	15-17	1	*	1	1	1	*	*	0	0	*	*	*
	18-20	*	*	1	1	1	*	*	*	*	*	*	*
	21-23	*	*	1	*	0	*	0	0	0	0	*	*
Mactan Isle	00-02	3	2	6	8	2	1	1	*	1	1	3	2
	03-05	3	1	5	6	2	1	1	*	1	1	3	2
	06-08	1	1	1	5	1	*	0	*	*	1	1	*
	09-11	1	1	*	5	*	0	*	*	0	1	*	*
	12-14	1	0	2	4	1	*	*	0	*	1	*	*
	15-17	1	*	2	5	*	*	0	0	0	1	*	*
	18-20	1	1	3	6	1	*	0	0	1	*	1	1
	21-23	1	1	6	9	2	1	*	*	1	1	2	1
Manila Int	00-02	3	5	9	8	5	1	*	*	*	2	3	3
	03-05	3	5	5	6	3	1	*	*	*	2	3	3
	06-08	2	3	5	5	3	*	*	*	*	1	2	2
	09-11	3	3	5	5	2	*	*	*	*	1	2	2
	12-14	2	3	4	4	2	*	*	*	*	1	1	1
	15-17	2	3	5	5	3	*	*	*	*	1	1	2
	18-20	2	2	6	6	3	*	*	*	*	2	2	3
	21-23	4	6	9	9	4	1	*	*	*	2	4	2

Note: * equals less than 0.5 day

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Table 2

PHILIPPINES (cont)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Jolo	0200	*	1	1	1	*	*	*	*	*	*	*	*
	0500	*	*	*	*	0	*	*	0	*	*	0	0
	0800	*	*	*	1	*	*	*	*	*	*	*	*
	1100	*	0	*	0	0	0	0	0	0	0	0	0
	1400	*	0	0	0	0	*	0	0	0	0	0	0
	1700	*	*	*	0	0	*	0	0	0	0	0	0
	2000	*	*	*	0	*	*	0	0	0	*	*	0
	2300	*	*	1	1	1	*	*	0	0	0	*	*
Malaybalay	0200	5	4	8	8	3	3	1	2	2	3	5	6
	0800	4	3	7	10	5	3	3	2	2	5	4	5
	1400	*	*	1	1	0	0	*	*	0	*	*	*
	2000	3	4	4	4	1	*	*	*	*	1	3	3
Hinatuan	0200	0	0	*	1	1	2	1	1	*	1	1	1
	0800	*	0	0	1	*	1	*	*	*	1	1	1
	1400	0	0	*	*	0	0	0	*	*	0	*	0
	2000	0	1	1	2	*	0	0	0	0	0	*	0
Iloilo	0200	1	2	1	2	1	0	*	0	0	0	1	1
	0500	1	1	1	2	1	0	*	0	*	0	1	1
	0800	0	*	1	1	0	0	0	0	*	*	*	1
	1100	*	0	1	*	0	*	0	0	*	*	*	0
	1400	*	*	1	*	*	0	0	0	0	0	*	0
	1700	1	*	1	1	0	*	0	0	*	*	*	*
	2000	1	1	2	3	*	*	0	0	*	0	*	1
	2300	1	2	2	4	1	0	0	0	0	1	1	2
Coron	0200	4	1	3	4	3	1	1	1	*	2	2	3
	0800	3	3	4	2	2	0	*	1	1	1	3	3
	1400	1	1	2	2	1	0	0	*	*	*	1	1
	2000	3	1	5	5	2	*	*	0	*	1	5	4

Note: * equals less than 0.5 day

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Table 2

PHILIPPINES (cont)

	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Borongan	0200	1	1	1	2	1	2	2	1	2	2	2	1
	0800	1	1	1	1	0	2	2	2	1	2	1	1
	1400	*	*	1	1	1	*	*	*	*	*	*	1
	2000	1	1	1	2	1	2	1	2	1	2	2	1
Surigao	0200	0	0	0	1	*	1	0	*	1	1	*	*
	0800	*	*	*	1	*	*	1	*	0	*	0	*
	1400	*	*	*	1	*	*	*	*	*	*	1	0
	2000	*	*	1	1	1	1	*	1	1	1	2	*
Cagayan De Oro	0200	2	2	3	2	1	1	1	*	*	*	1	1
	0800	?	2	3	2	2	1	1	1	1	1	2	1
	1400	*	1	1	1	*	*	*	0	0	0	0	*
	2000	1	1	1	*	*	0	0	0	*	*	*	*

Note: * equals less than 0.5 day

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Table 2

PHILIPPINES (cont.)

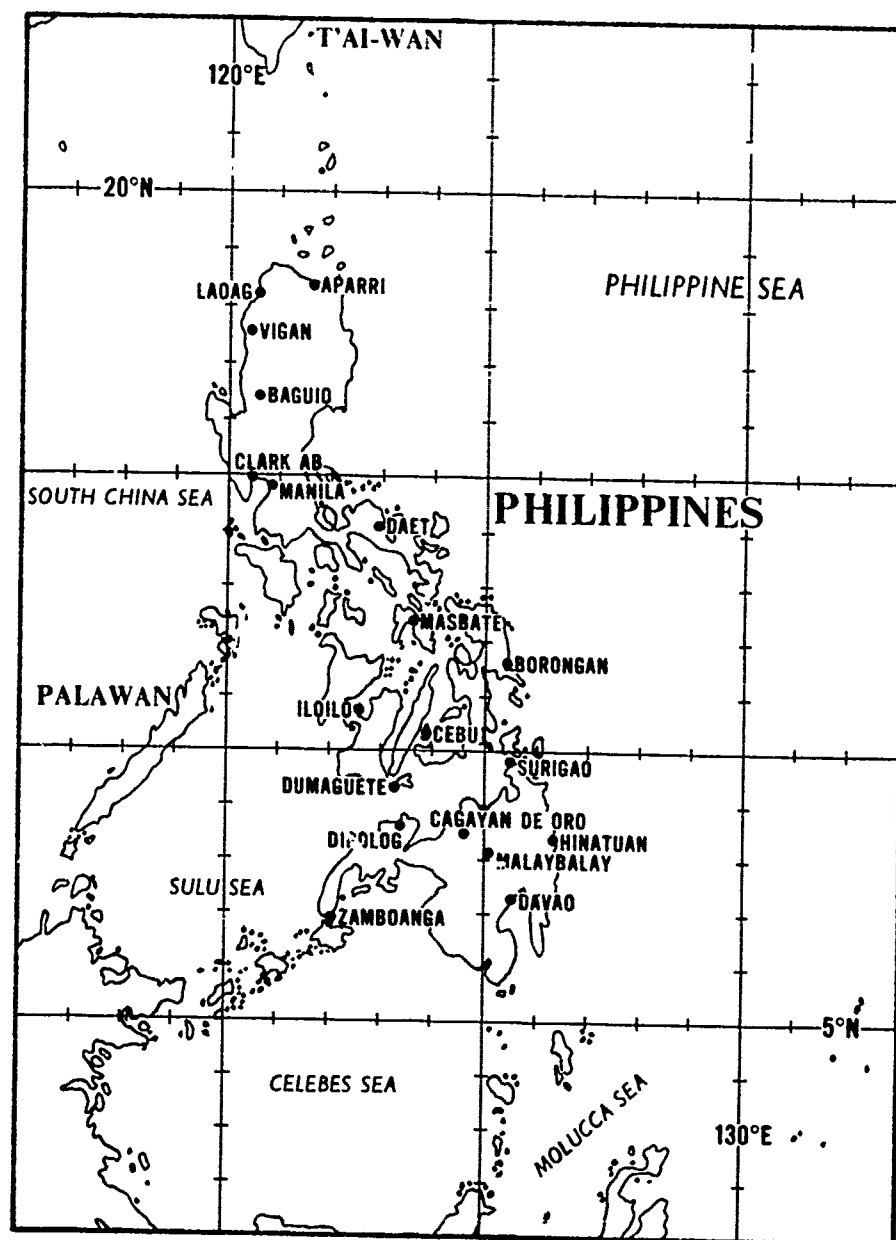|	LST	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sangley Point	00-02	3	6	8	7	3	1	*	*	*	1	2	2
	03-05	3	5	7	6	3	1	*	*	*	1	2	2
	06-08	1	2	3	3	1	1	*	0	*	*	1	*
	09-11	1	2	3	3	1	1	*	0	*	*	1	*
	12-14	1	1	2	2	1	1	*	0	0	*	*	*
	15-17	1	1	3	2	*	0	0	0	0	*	*	*
	18-20	1	2	5	3	1	1	*	0	0	*	1	1
	21-23	3	4	8	5	2	1	*	*	*	1	1	2
Zamboanga	00-02	3	1	3	3	1	1	*	1	1	1	2	2
	03-05	1	1	3	1	1	*	*	1	1	1	1	1
	06-08	2	1	3	2	1	*	1	*	1	1	2	1
	09-11	1	2	3	1	1	*	1	1	1	2	1	1
	12-14	1	1	3	1	*	*	*	*	1	1	1	*
	15-17	1	1	2	1	*	*	0	*	*	*	1	*
	18-20	2	2	2	2	1	*	*	*	1	1	2	2
	21-23	2	2	3	4	2	*	*	*	1	1	2	3
Puerto Princess	0200	1	2	2	1	1	*	0	0	*	*	1	1
	0500	*	*	2	1	1	*	0	*	*	*	*	*
	0800	1	1	3	3	2	*	1	*	1	2	1	1
	1100	1	*	1	1	1	0	*	0	*	*	*	*
	1400	1	*	1	1	*	0	0	0	0	*	0	*
	1700	1	*	1	1	*	*	0	0	0	*	0	*
	2000	2	2	3	2	1	*	*	*	*	*	1	2
	2300	3	1	2	2	2	*	*	/	*	1	*	*
Masbate	0200	2	3	5	5	2	1	1	1	1	2	2	1
	0500	1	*	1	1	1	0	1	0	*	*	*	*
	0800	1	1	2	1	1	*	*	*	1	1	1	1
	1100	0	0	1	*	*	0	0	0	0	0	0	0
	1400	1	1	2	1	1	0	0	0	*	*	*	*
	1700	1	0	2	2	1	0	0	0	0	0	*	*
	2000	5	6	9	11	7	2	2	2	2	3	5	4
	2300	1	1	4	7	2	0	*	*	1	1	1	*

Note: * equals less than 0.5 day

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Figure 1. Map of Philippines Showing Stations Used in Study.